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EXAMINER

LIPITZ, JEFFREY BRIAN

ART UNIT

PAPER NUMBER

3769

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/551,685	Applicant(s) LUTHER ET AL.	
	Examiner JEFFREY B. LIPITZ	Art Unit 3769	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 28 January 2011.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 13-16, 18 and 21-26 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 13-16, 18 and 21-26 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 12 July 2010 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on January 28, 2011 has been entered.

Response to Arguments

Applicant's amendments with respect to the objection to claim 15 have been fully considered and are persuasive. This objection has been withdrawn.

Applicant's arguments with respect to the 112 1st paragraph rejection of claim 13 have been fully considered but they are not persuasive. Applicant continues to redefine the ophthalmic instrument presented in the original disclosure as a particular type of instrument known to those skilled in the art. This argument is not persuasive, because there are in fact other ophthalmic instruments, which were NOT excluded from use in the original disclosure. More importantly, an objective with the optical path recited in the claims was never taught or suggested. The only way Applicant's argument would be persuasive is if ALL optical observation systems had a parallel beam path at the objective lens(es). However, there are many that are NOT binocular in nature, and rely on other optical components such as cameras and photodetectors that simply do not require the disputed parallel beam path. This rejection has been maintained.

Applicant's arguments/amendments with respect to the prior art rejections have been fully considered but are moot in view of the new grounds of rejection.

Drawings

The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the control unit must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Objections

Claim 13 is objected to because of the following informalities: The preamble recites an irradiating and illuminating unit, yet in the body of the claims only an illumination source is provided. Appropriate correction is required.

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claim 13 is rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. The newly added language is not supported by the original disclosure, and it is NOT inherent with respect to the language of the specification. Applicant makes one mention of an observation system, which for example could be an observation microscope of a slit lamp (Paragraph [0027]). This statement implies that other observation systems could be used, and does not specify the type of microscope used. Applicant's invention is clearly not intended to be contingent on the optics described in this claim. Applicant does have support for optical elements in the drawings/specification. These optical elements can and should be used to describe the positioning of the beams.

Art Unit: 3769

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 14 and 24-26 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 14 is rejected under 35 U.S.C. 112, second paragraph, as being incomplete for omitting essential structural cooperative relationships of elements, such omission amounting to a gap between the necessary structural connections. See MPEP § 2172.01. It is unclear how the monitoring unit carries out the functions recited in the claims. How are positions registered? How is dosage monitored? How is this structure connected to the elements recited in claim 13?

Regarding claim 24-26, these claims appear to depend on external and undefined structures, such as subassemblies and the ophthalmic instrument. Therefore, these claims are rendered indefinite.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 13, 16, 18, 21 and 22-26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Levine (20030007124) in view of Platt et al. (20020060786), hereinafter Platt OR Wegmann (20030137655).

Regarding claim 13, Applicant recites a means for generating patterns and a means for coupling. The former recitation is NOT interpreted under 112 6th paragraph because it is sufficiently defined by structure (e.g. optical filters, diaphragms and or optoelectronic modulators); however, latter recitation is interpreted under 112 6th paragraph. Accordingly, per Applicant's specification, the means coupling must be a beamsplitter or a functional equivalent.

Levine teaches units comprising a light or illumination source (207,225; Figure 2a), a means for generating patterns or profiles, which Examiner interprets as the diaphragm (243) OR the wavefront analyzer (213; paragraph [0091]). A diaphragm inherently alters at least a profile of the incident beam. Levine also teaches a means for coupling or a beam splitter (239) and an objective lens (241; Figure 2). The objective is located downstream of the beam splitter, and Levine illustrates the parallel beams and the convergent beams, as claimed. Furthermore, Levine teaches the use of spectral filters (Paragraphs [0010] and [0073]) and diaphragms to control illumination of the retina (paragraph [0074]). If the wavefront analyzer (213) is interpreted as the means for generating, then the beam splitter (249) can additionally be interpreted as the means for coupling.

Levine does NOT teach that the diaphragm or wavefront sensor creates different and variable patterns. Attention is directed to Platt who teaches correcting aberrations

Art Unit: 3769

in an optical system (Summary of the Invention). Platt discloses using a dynamic light modulator or DMD or LCD to generate different patterns, but suggests advantages of using a vertical cavity surface emitting laser ("VCSEL") array couples to a lens matrix for such a purpose (Paragraphs [0056-0060]). Platt also teaches using this array within a wavefront sensor (Paragraph [0060]). Platt also discussed controlling the various embodiments, which inherently requires a control unit (Paragraphs [0056-60]). This optical configuration provides the ability to create variable and different profiles and patterns. It would have been obvious to modify the invention of Levine to include any of the embodiments of Platt because doing so would enable Levine's device to project any pattern or profile best suited to illuminate or irradiate the optical surface.

Levine does NOT teach that the diaphragm or wavefront sensor creates different and variable patterns. Attention is directed to Wegmann who teaches measuring the imaging fidelity of an optical imaging system (Summary of the Invention). Wegmann teaches projecting a pattern that can be regarded as a wavefront source (paragraph [0062]) by using an electronically controlled mask, such as a liquid crystal array (Paragraph [0074]). It would have been obvious to use the wavefront technology of Wegmann with the invention of Levine because doing so allows the acquisition of particular imaging parameters that would enhance the resolution of the fringe aberrations (Paragraph [0009]).

Regarding claims 16 and 18, Levine is silent to a particular wavelength of light; however, he does teach using a xenon or krypton light source (Paragraph [0058]). Xenon sources emit in the UV range, which Examiner interprets as being around 365

Art Unit: 3769

nm, since Applicant has provided no metric by which to limit "around". Krypton sources emit in the mid-600 nm range, which using the same rationale is around 690 nm.

Regarding claim 21, Levine teaches using beam splitters (249 or 263) to couple an observation image to a view finder (227; Figure 2) for direct observation (Paragraph [0085]). The beam splitter (249) must separate the light based in part on wavelength, since infrared light is produced by the source (225), while source (207) uses a xenon or krypton source, as discussed in the rejection of claims 16 and 18, *supra*. Furthermore, it is well known to a skilled artisan to use a beamsplitter to separate light based on wavelength. The recitation concerning protecting the observer has no patentable significance, since there is no metric by which to limit the spectra, intensity or any other property of the light.

Regarding claim 22, Levine teaches that the light source teaches does NOT teach that the illumination source (11) is not arranged within the illumination unit. However, making an element separate is not of innovation. It would have been an obvious matter of design choice to make the illumination source separate from the illumination unit or to make the illumination unit a modular unit for retrofit installation into an ophthalmic instrument, since such modifications would have involved making the parts separately or portable. Making a part separate, if it is desirable, is generally recognized as being within the level of ordinary skill in the art. In *re Dulberg*, 289 F.2d 522, 129 USPQ 348,349 (CCPA 1961). Furthermore, Applicant admits that positioning light sources outside of a main housing, and using a light guide or conductor to transmit

Art Unit: 3769

the light to a main housing is common to one of ordinary skill in the art (Applicant's Arguments/Remarks: Pages 10- 11).

Regarding claim 23, Levine teaches using a fixation target to track movements of the eye, which enables tracking of the spot patterns (paragraphs [0066], [0090], [0096] and [0144]).

Regarding claims 24-26, Levine teaches using the unit in combination with a wavefront measuring unit or wavefront sensor based adaptive optical subsystem (203; Figure 2). This unit is modular (Summary of Invention and paragraph [0086]).

Claims 14 and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Levine and Platt/Wegmann as applied to claim 13 above, and further in view of Sumiya (US 6,585,723 B1).

Regarding claims 14 and 15, Levine teaches providing a computer for recording patterns (Paragraphs [0060] and [0102]), and providing interfaces such as connectors, to send data to external devices for processing, analysis, etc. (Paragraph [0148]). However, although Levine intends to use his invention with an ablative laser (paragraph [0033]), that configuration is not discussed. Attention is directed to Sumiya who teaches using an ablative laser to correct detected aberrations (Summary of the invention). Sumiya teaches a computer or monitoring unit (8) comprised of an input unit (41), a processing unit (42), a display unit (43), and an output unit (44). The processing unit (42) processes signals sent from the photodetector (23), signals sent from the corneal shape measurement optical system (10) and the inputted irradiation conditions in order to obtain ablation data. The data processed by the processing unit (42) is sent to the

Art Unit: 3769

control system (40). Processed data may also be sent to the display unit (43). In addition to controlling the processing unit (42) and the control system (40), the computer (8) functions at least at the level of a basic computer, which can store or record ablation data or radiation dosage, irradiation patterns and positions. Sumiya specifically mentions that it has more than one interface for transferring data (a printer and a floppy disc drive; Column 3, Lines 21-24; Column 5, Lines 35-60). It would have been obvious to a skilled artisan to include the monitoring device of Sumiya with the invention of Levine, because Levine's device is intended to be used with corneal surgical apparatuses. Therefore, it would have been advantageous to provide a monitoring system that monitors all aspects of the wavefront measurement, image capture/processing and the surgical procedure in order to reduce transfer of data and redundant elements (e.g. computers).

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to JEFFREY B. LIPITZ whose telephone number is (571)270-5612. The examiner can normally be reached on Monday to Thursday, 10 am to 6:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Henry M. Johnson III can be reached on (571)272-4768. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 3769

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/JEFFREY B LIPITZ/
Examiner, Art Unit 3769

/Henry M. Johnson, III/
Supervisory Patent Examiner, Art
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